

REMARKS/ARGUMENTS

In association with a Request for Continuing Examination (RCE) filed herewith and in reply to the Final Office Action mailed December 2, 2004, please enter the enclosed amendments and consider the following remarks. All of the outstanding rejections and indications by the Office are addressed *via* this amendment, in which claims 1, 8, 10, 12-14, 20 and 22-23 are amended. New claims 24-26 have been added by this amendment. Fully supported by the specification, these new claims do not add new matter.

After entry of this paper, claims 1-26 will be pending in this application. Applicants respectfully submit that all pending claims are now allowable, and request favorable action to that effect.

35 U.S.C. § 102(b) Rejection

In the Final Office Action, claims 1, 8, 10, 12-16 and 20-23 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Francis *et al* (U.S. Patent No. 5,761,418).

While Applicant respectfully disagree with these rejections, Applicants have amended the independently claims at issue here to further obviate the rejection. The instant claims recite the clusters as hierarchically organized. In contrast, Francis recites clusters have no hierarchical organization. In Francis, terms may be hierarchically organized within the clusters, but the clusters themselves are only "sparsely connected"

and not hierarchically organized. Moreover, the representation of documents recited in the independent claims covered by this rejection is radical differences than what is taught or suggested by Francis. According to the recitations of the presently amended claims, documents are represented as a set of (document, word) pairs, so that soft assignment of both words and documents to any node of the hierarchy may be achieved as this method of representation allows dissemination of different (document, word) pairs to different nodes. Hence, the instant claims are directed to a property that is at the core of the automatic construction of the hierarchy of clusters, where each word in a document can pick a different, preferred node. It should also be noted that the clusters represent both words and documents, with no privileged interpretation (in terms of words or documents) for the leaves of the hierarchy, so that documents and words each play, at this level, a symmetric role, as one can infer from the retained (document, word) pair representation. Francis, in contrast, uses standard document representations and standard clustering techniques.

Therefore, claims 1, 8, 10, 12-16 and 20-23, as they are written here, are not anticipated by Francis *et al* under 35 U.S.C. § 102(b). Accordingly, Applicants respectfully request the withdrawal of the instant rejections.

35 U.S.C. § 103 Rejection

Claims 2-7, 9, 11 and 17-19 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable for obviousness over Francis *et al* (U.S. Patent No. 5,761,418) in view of Agrawal *et al* (U.S. Patent No. 6,233,575).

Applicants respectfully traverse and assert that for the following reasons, the instant claims, as they are written, are not obvious over the cited references. The claimed invention here is directed to a technique for soft, hierarchical clustering of co-occurring objects (i.e., data that can be represented as a set of object pairs). As set forth above, Francis fails to teach or suggest organizing clusters hierarchically. Furthermore, Agrawal, alone or in combination with Francis, fails to cure the deficiencies noted above. For example, Agrawal pre-defines the classes, which correspond to categories, but does not teach or suggest the class discovery method herein claimed. Agrawal takes on a standard CLASSIFICATION (or categorization) setting, assuming that a first topic hierarchy and the sample documents belonging to various nodes in the topic hierarchy are given. In contrast, the invention claimed here takes on a standard CLUSTERING setting, assuming only that a raw collection of documents are given.

In light of the foregoing distinctions, the instant claims are not obvious over Francis *et al* in view of Agrawal *et al*. Applicants thus respectfully request that these rejections be withdrawn.

CONCLUSION

By virtue of the foregoing amendments and remarks, this paper is fully responsive to all outstanding rejections by the Office. Applicants submit that the pending claims, as amended or otherwise presented herein, are allowable over the references cited against this application. Applicants therefore request the entry of this

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Amendment, reconsideration of the amended application, and timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 24-0037.

Respectfully submitted,

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